

WHAT IS CLAIMED IS:

1. An oxide film-forming apparatus, comprising:
a process chamber for disposing an
electronic device substrate at a predetermined position;
5 water vapor supply means for supplying
water vapor into the process chamber; and
plasma exciting means for activating the
water vapor with plasma,
whereby the surface of the electronic
10 device substrate can be irradiated with the plasma based
on the water vapor.
2. An electronic device material, comprising:
an electronic device substrate having at
least one trench, and
15 an oxide film covering a part of the
surface of the electronic device substrate; the part
containing at least one trench groove,
wherein, in the oxide film covering the
trench groove, the ratio (T_{100}/T_{110}) of the thickness T_{100}
20 of the oxide film disposed on the surface (100) of the
electronic device material, to the thickness T_{110} of the
oxide film disposed on the surface (110) of the
electronic device material is 0.65 or larger.
3. An oxide film-forming process, comprising:
25 irradiating the surface of an electronic
device substrate with plasma in the presence of a process
gas containing at least water vapor, so as to form an
oxide film on the surface of the electronic device
substrate.
- 30 4. An oxide film-forming process according to
claim 3, wherein the oxide film is formed at a
temperature of 500 °C or lower.
5. An oxide film-forming process according to
claim 3 or 4, wherein the plasma is generated on the
35 basis of microwave irradiation through a plane antenna
member having a plurality of slits.